

FLIGHT

The
AIRCRAFT
ENGINEER
&
AIRSHIPS

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Founder and Editor : STANLEY SPOONER

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" FLIGHT " PHOTOGRAPHS.

To those desirous of obtaining copies of "Flight" Photographs, these can be supplied, enlarged or otherwise, upon application to Photo. Department, 36, Great Queen Street, W.C.2

For Sizes and Prices, see Advert. on page iii.

DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list :—

- 1927
- Dec. 15

....

" The Development of Torpedo-Carrying Aircraft." Maj. A. F. Bumpus, before R.Ae.S. and I.Ae.E.
- Dec. 31

....

Entries Close for R. 38 Memorial Prize (R.Ae.S.).
- 1928
- Feb. 1

....

" Aircraft in Small Wars." Wing-Comdr. R. H. Peck, before Royal United Services Inst.
- Oct. 7-28

....

International Aircraft Exhibition, Berlin.
- 1929
- Oct. 31

....

Guggenheim Safe-Aircraft Competition Closes.

EDITORIAL COMMENT



Civil
Flying
in U.S.

At a time when the balance-sheet of our own " Million Pound Monopoly Company " is being discussed, it is not without interest to examine the statistics relating to commercial flying in the United States. True, the period under review in the statistics published in this issue is a relatively short one, *i.e.*, January to June, 1927, and, moreover, the traffic on the St. Louis-Chicago section was largely due to the heavy floods. This applies particularly to the express matter, and is traffic upon which one could not, of course, count in normal times. For all that, the figures contained in the tables on p. 849 are of very considerable interest. The total number of machine-miles flown by regular air service machines was 2,642,364, which is a rather impressive figure for six months' operation. The number of passengers carried was insignificant, this being due to the fact that hitherto the United States have not catered especially for passenger traffic, the Government services with which America originally commenced operations being purely mail services, working in close co-operation with the general post office.

During the six months under review the American lines carried 621,236 lbs. of mails and 1,045,222 lbs. of express matter. Even allowing for the portion carried on the St. Louis-Chicago section, *i.e.*, 21,651 lbs.—an item which, as already stated, is probably exceptional—our friends on the other side evidently make good use of the speeding-up which the air lines afford. The income from carrying 621,236 lbs. of mails was \$773,280·95 (don't forget the 95 cents !), or an average of about \$1·18 per lb. Unfortunately, figures of cost are not available, and so it is impossible to know whether the lines, on the average, succeeded in paying their way—or, at any rate, coming within sight of doing so.

Turning to the subject of reliability, it is gratifying to find that the American authorities have used the system long advocated by FLIGHT, and for many years ignored by our own civil aviation statisticians, *i.e.*, giving number of flights completed in proportion to number scheduled, instead of, as was the custom in

this country for years, giving number of¹ flights completed out of number of flights commenced. As we have frequently pointed out, the latter system can, and usually does, give a much better figure of reliability, but is utterly useless because, taking it to extremes, a service which refuses to start under any but perfect conditions may easily attain 100 per cent. regularity, but may be almost useless for practical purposes.

Table B contains the regularity of all the recognised lines, and compared with the old basis the figures may appear disappointing. They are, however, of very direct utility in that they do show what percentage of flights were completed out of the total scheduled. The average reliability of all the services is 4,578 flights completed out of 5,272 scheduled, or a reliability of about 86.8 per cent. On the basis used this is a very good percentage, even if it does not yet compare with corresponding percentages in older means of transport. Only two sections succeeded in attaining 100 per cent. reliability, i.e., the Pilottown-New Orleans line and the Cheyenne-Pueblo line, the former of which made 324 trips and the latter 362, both in a period of six months. Of the rest of the lines there is considerable differences between the causes which brought down the reliability figures. For instance, the Detroit-Cleveland route completed all the trips commenced, but did not start 46 out of the 574 scheduled. On the old basis, therefore, this route could claim 100 per cent. reliability, whereas on that used the reliability was 92 per cent. Just the reverse happened on the Los Angeles-Seattle route, where all scheduled trips were commenced, but only 198 out of 310 scheduled were completed. Whether this means that the latter service is more plucky and tries its utmost, while the former is cautious and only starts when there is a good chance of getting through, we have no means of knowing! Most likely, the reasons are totally different, and connected with climatic and geographical conditions.

The long overland route from San Francisco to New York, with its night service between Chicago and New York, calls for special attention. A superficial glance at the figures given for the total trans-continental route might give the impression that the reliability was not very good. It should be recalled, however, that the distance is one of several thousand miles, and moreover, as stated in the footnote to Table B, the trips in which the mails had to be sent on by rail were counted as uncompleted, as indeed they were as regards the aircraft, although in practically all instances the mails themselves completed the trip within a reasonable time.

The overnight Chicago-New York line is of very special interest to us in this country, because of the fact that it operates at night. As we have frequently pointed out, air mails will not really begin to give their full utility until regular night-flying becomes possible. On the Chicago-New York route no less than 306 trips were completed out of 362 scheduled, or a reliability of 84.5 per cent., which must be regarded as extremely good for a night service, and is the best possible argument for starting really seriously in this country on developing night-flying. Half-hearted attempts have been made from time to time, and a certain number of experiments were carried out some years ago. Of late, however, it would appear that our own authorities have lost all interest in this subject. Night-flying becomes particularly interesting in connection with seaplane services because, in reasonably good weather at any rate, a descent at night is not attended, in for instance a seaworthy flying boat with appropriate equipment, with anything like the same risk as a forced descent at night on land.

Altogether we think our American cousins can be proud of their air lines. Certainly from the technical operational side, whatever may be the case with the financial aspect.

* * *

Britain at I.L.A.

We have previously referred to the importance of British representation at the international exhibition to be held in Berlin during October of next year. The subject is brought to the fore again by a letter which the Editor of FLIGHT has received from Herr Major von Tschudi of the German Aero Club, announcing the arrival in London shortly of Herr Tetens, of the *Reichsverband der Deutschen Luftfahrtindustrie*, which corresponds to our S.B.A.C. On behalf of German aviation we would bespeak for Herr Tetens a hearty welcome in this country, and as soon as we know definitely the date of his arrival in London we shall have great pleasure in announcing it in FLIGHT. In the meantime, any British firm interested in discussing with Herr Tetens the possibility of exhibiting at the Berlin show is asked to communicate with us in order that we may assist in any way possible. For the moment we are unaware how long Herr Tetens intends to remain in this country, but it is to be hoped that the Society of British Aircraft Constructors will endeavour to have their plans prepared so that as little time as possible may be lost in making arrangements with Germany's representative.

Schneider Trophy Contest

THE Royal Aero Club has fixed the date of the next contest for the Schneider Trophy for September, 1928. The venue for the race has yet to be decided upon.

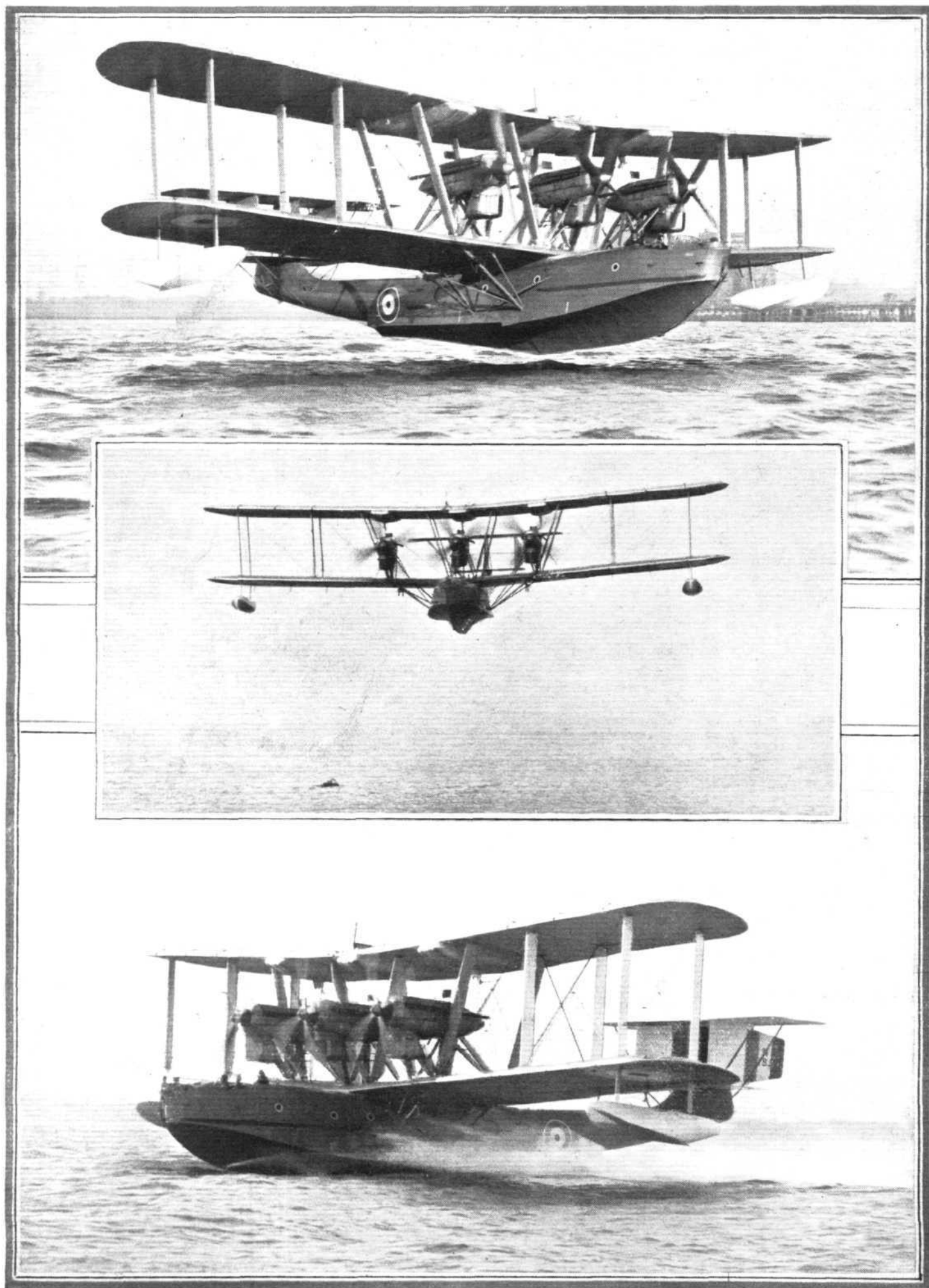
Air Defence

A LECTURE on "Air Power and its Application" was given at the Royal United Service Institute on December 7, by Group-Capt. W. F. MacNeece Foster (British Air Staff representative of the League of Nations). Sir Samuel Hoare presented and in his opening remarks he stated that by virtue of the mobility conferred by the aeroplane today and perhaps in the future by the airship, their air defences could be concentrated at certain definite centres and moved rapidly about as circumstances, required. Group-Capt. MacNeece Foster said that air power depended on the number, moral and skill of pilots, the quantity and quality of aircraft, and the

ground organisation, of which a supply of skilled mechanics was one of the most important features.

American Aviation

IN a recent message to Congress from President Coolidge it stated as regards aviation, that 8,000 miles of national airways were completed and about 4,000 miles more contemplated. Over 900 airports had been laid out, many of which were finished. The policy of Congress was producing the sound development of this coming industry. Private enterprise was showing much interest in aviation in Mexico and Central and South America. The Post Office Department should be granted power to make liberal long-term mail contracts, and authority given to the Army and Navy to detail aviators and planes to co-operate with private ventures in establishing such mail services.



THE SEAWORTHY FLYING-BOAT : These three photographs show the Blackburn "Iris II" with three Rolls-Royce "Condor" engines. The hull is of metal construction. Note the sharp concave Vee-bottom, and the exceptionally "clean" running on the water. (See p. 848.)

THE BLACKBURN "IRIS II"

Three Rolls-Royce "Condor" Engines

(Photographs on p. 847.)

IN the paper read before the R.Ae.S. & I.Ae.E. recently, Major Rennie dealt with the problems of the long-range flying-boat, basing his calculations on a boat the characteristics of which may be taken to resemble fairly closely those of the Blackburn "Iris," of which Major Rennie is the designer. In the course of his paper Major Rennie defined seaworthiness in the following way:—"A boat is seaworthy if it remains so while on the water, and when in the air is airworthy, and is able to alight in a seaworthy condition and still be airworthy." Whatever may be one's opinion of this definition, few will dispute the fact that in the two "Iris" boats Major Rennie and the Blackburn company have produced machines which for seaworthiness and clean running on the water must be considered to be among the world's best. In his paper, after thus defining seaworthiness, Major Rennie made the following remarks, which are significant in connection with the three views of the "Iris II" published this week:—"While it is not within the province of this paper to discuss the design as affected by seaworthiness, as defined above, it may be said if due consideration is given to the type of vee bottom on the hull, the form of the fore body and the run of the chine from the main step to the bows, a satisfactory degree of seaworthiness may be obtained, as experience with the Blackburn "Iris" has shown a remarkable advance in this respect without sacrifice in other qualities."

The photographs on page 847 show quite clearly the form of the bottom of the "Iris II," and it will be noted that not only is the chord of the vee inclined at a considerable angle, but the vee itself is made with a pronounced hollow, turning into a nearly horizontal direction at the chine. This is visible both in the upper photograph and in the inset front view.

The lower photograph illustrates the remarkably clean running on the water, the "blister" being kept quite low, well below the level of the lower plane and the airscrews, by the curved vee. At the same time the sharp lower portion of the vee probably enables the machine to alight with very little shock.

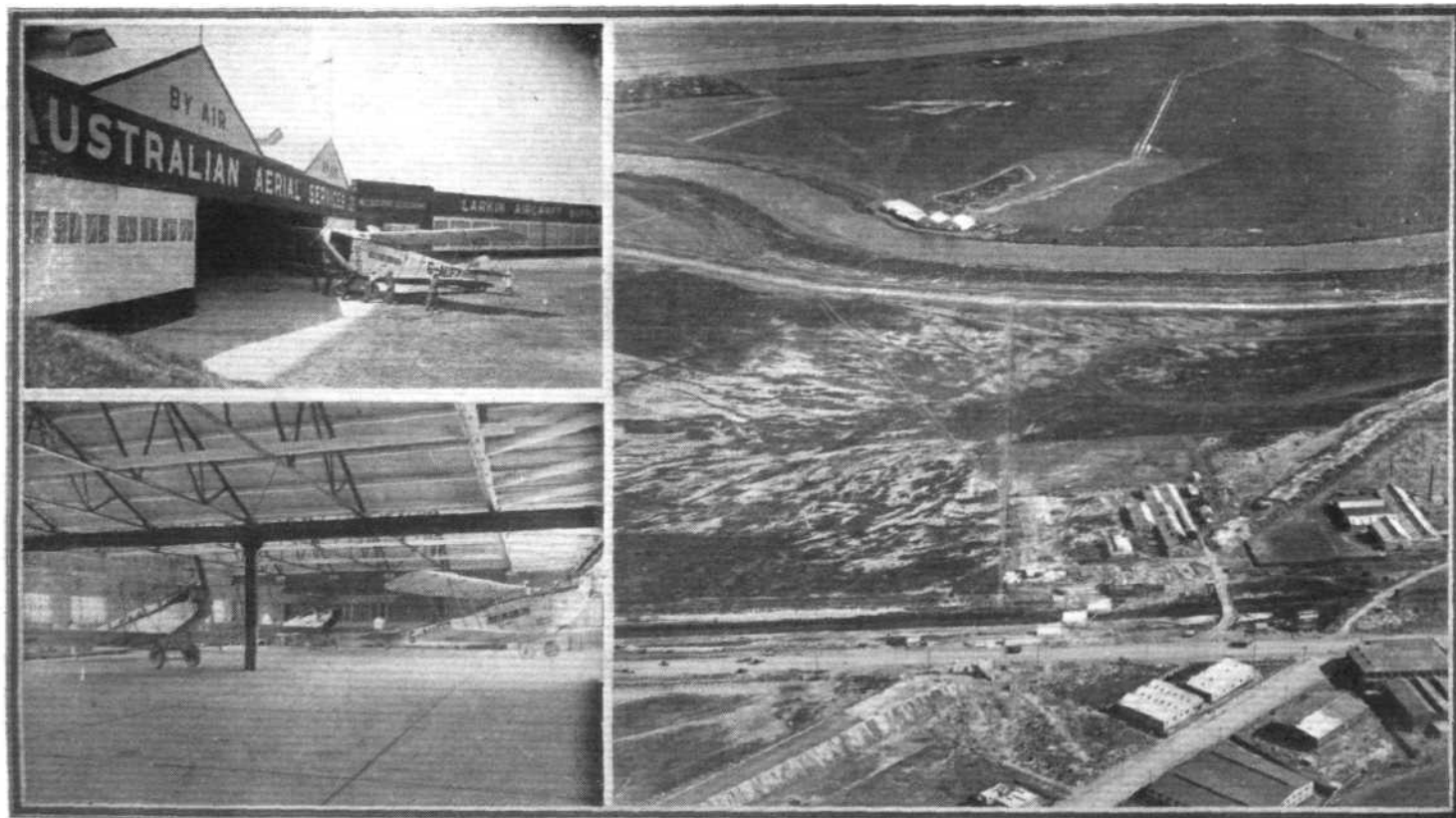
The "Iris I" had a wooden hull which was, generally speaking, of similar form, although a comparison of the photographs published this week with those published in our issues of September 9 and October 7, 1926, will reveal certain differences. With the metal hull of the "Iris II," coupled with certain changes in the superstructure, notably the engine cowlings, a considerable advance was made. Among others may be mentioned the absence of water soakage in the metal hull, which in a machine of this size may amount to several hundred pounds.

From the fact that the Blackburn "Iris II" has now been put on the Air Ministry's "Open List," it may, perhaps, be permissible to venture the guess that this machine may be followed by a third in the series. It is only by continued development, incorporating in each succeeding machine such improvements as have been suggested by experience with the preceding type, that progress can be made. As Major Rennie pointed out in his paper, model tests in the tank are a very useful guide if their results are translated in the light of practical experience with full-scale machines. A definite policy of development is what is chiefly required at the moment, and fortunately there are indications that those in authority are at long last beginning to realise the vital necessity of fostering the seaplane in the interests of British Empire aviation, both civilian and service. The Blackburn "Iris" family is one link in this development.

"281 M.P.H."

UNDER the above title D. Napier and Son, Ltd., of Acton, have just issued an exceedingly striking leaflet. The contents include illustrations of the British Schneider machines—the Supermarine-Napier S.5 and the Gloster-Napier IV—the British team, and the Schneider Trophy itself, together with a

number of extracts from the Press regarding the part played in this classic contest by the Napier engine. All are contained within neat grey art covers, on the front one of which is a beautiful colour design—reproduced, for the first time in this country, by a new process—depicting the Victorious Supermarine-Napier S-5 flying over the Lido.



MELBOURNE AIR PORT : We show on the right an aerial view of the new air port of Australian Aerial Services, Ltd., at Melbourne, which were opened recently by His Excellency, the Governor-General. The new premises—which are also shown at close quarters on the left—adjoin a dead-end tributary of the river Yarra, which, it is intended, will be used as a seaplane base. The machines shown include a Sopwith "Wallaby" and A.N.E.C. biplane.



CIVIL FLYING STATISTICS IN AMERICA

Figures for the Mail and Passenger Services from January—June, 1927

REFERENCE has already been made in FLIGHT to the fact that Civil Aviation in the United States of America is slowly but surely paying its way. The following statistics—which have been compiled by Maj. E. Jones, Chief of the Information Division of the Assistant Secretary of Commerce for Aeronautics, and for which we are indebted to our contemporary U.S. Air Services—should, therefore, serve as an indication as to the amount of traffic handled on the air lines operating in America during January-June, 1927.

While most contract air mail routes have been carrying passengers who request passage, only eight have published passenger rates. The average passenger-mile is 13 cents plus.

179 were not started and 506 were uncompleted. Failures to start or complete trips were ascribed to the following causes :—Weather and darkness, 623 ; Structural, 4 ; Mechanical, 28 ; Shortage of equipment, 30. Total 685. (See Table B.)

In addition to scheduled operations, included in the accompanying tables, over airways, several carriers handled passengers for short flights in the vicinity of the aerodrome—taxi work, tests, photo, joy rides, etc. These are not included, but are recorded separately, for the same routes, as follows :—

Miles flown, 362,249. Passengers carried, 8,305. Express carried, 1,950 lbs.

Table A : General Statistics				Miles Flown	Passengers	Mail Carried,	Express	Air Mail
Routes				Scheduled	Carried	lbs.	Carried,	Income
				Trips (f)			lbs.	
	San Francisco-New York (a) (b) (x)			913,031	None	212,976	None	(g)
	Chicago-New York Overnight (b) (x)			233,417	None	88,048	None	(g)
M	New York-Boston (x)			53,020	231	8,164	100	\$24,488.06
M	St. Louis-Chicago			63,987	2	16,999	21,651	43,024.77
M	Dallas-Chicago (x)			343,708	59	51,274	None	153,654.36
M	Los Angeles-Salt Lake City (x)			204,972	147	88,746	20	266,235.93
M	Salt Lake City-Pasco			147,340	None	22,612	None	67,838.63
M	Detroit-Cleveland (d)			78,144	None	826	646,599	894.30
M	Detroit-Chicago (d)			81,732	None	4,741	364,099	5,120.85
M	Los Angeles-Seattle			212,454	318	31,420	None	89,374.89
M	Chicago-Minneapolis-St. Paul			83,320	None	11,418	None	31,400.70
M	Cleveland-Pittsburgh (e)			16,959	4	4,674	None	14,020.87
M	Pueblo-Cheyenne			72,400	2	15,606	None	46,819.49
M	Pilottown-New Orleans			25,920	None	37,896	None	16,208.10
M	Seattle-Victoria			10,764	11	25,836	None	14,200.00
	Detroit-Grand Rapids			41,300	1,087	None	2,404	(e)
	Louisville-Cleveland			23,940	30	None	244	(c)
	Detroit-Buffalo			30,936	None	None	10,105	(h)
Totals				2,642,364	1,891	621,236	1,045,222	\$773,280.95

M = Air Mail Contract routes. (a) Government operations between San Francisco and Chicago ended June 30, 1927. (b) Both night and day service between Chicago and New York started under private operation on September 1, 1927. (c) Commercial routes operating without mail contracts. (d) Private as to Express. (e) Began only on April 21, 1927. (f) Additional miles flown on uncompleted trips not included. (g) Government operated. (h) Private express line, no mail contract : began operations on March 28, 1927. (x) These lines have express contracts with American Railway Express Co.

No data is available on passenger-miles. Three private Ford express routes carry only Ford goods. The express matter carried during this period on the St. Louis-Chicago route was mostly flood relief supplies and does not indicate possible normal traffic. Beginning September 1, 1927, operations were inaugurated on a national scale under contracts between air mail contractors and the American Railway Express Co. on five routes. This marks the advent of an actual Air Express system. The average pound-mile rate is \$0.0015 (see Table A).

The airway operations, including the Post Office, for the first half of 1927, completed 4,587 out of 5,272 trips scheduled, an efficiency of 87 per cent. Of the 5,272 trips scheduled,

The total volume of civil flying in the United States during the first six months of 1927 is given as :—

	Miles.	Passengers (b)
Scheduled flying by airway operators	2,642,364	1,891
Miscellaneous flying by airway operators	362,249	8,305
Air Service operators (a)	9,373,320	385,450
Private owners	Unknown	Unknown
Manufacturers	Unknown	Unknown
Contests, races, and meetings	Unknown	Unknown
Totals	12,377,933	395,646

Table B : Trips Completed and Uncompleted				Trips	Completed	Uncompleted	Not Started
Routes				Scheduled			
	San Francisco-New York			362	182(a)	180	0
	Chicago-New York Overnight			362	306(a)	34	22
M	New York-Boston			302	241	20	41
M	St. Louis-Chicago			240	231	9	0
M	Dallas-Chicago			862	287	75	0
M	Los Angeles-Salt Lake City			362	348	13	1
M	Salt Lake City-Pasco			332	278	26	28
M	Detroit-Cleveland			574	528	0	46
M	Detroit-Chicago			306	294	1	11
M	Los Angeles-Seattle			310	198	112	0
M	Chicago-Twin Cities			258	230	22	6
M	Cleveland-Pittsburgh			142	133	7	2
M	Cheyenne-Pueblo			362	362	0	0
M	Pilottown-New Orleans			324	324	0	0
M	Seattle-Victoria			142	138	4	0
	Detroit Grand Rapids			306	295	1	10
	Louisville-Cleveland			74	70	2	2
	Detroit-Buffalo			152	142	0	10
Totals				5,272	4,578	506	179

M = Mail Contractors. (a) All trips on which mails were trained over any portion of the trip are counted as uncomplete, but the mails were advanced practically in all instances.

(a) Estimated (half of the estimated volume for 1926 is taken here). (b) Includes those both for hire and free.

From the foregoing figures the following information is obtained regarding air mail contractors only:—Average income per pound of mail carried, \$2.41. Average income from mail per machine-mile, \$0.55. Miles flown by mail contractors on schedule, 1,399,720. Mail carried, 320,212 lbs. Passengers carried, 744.

For the 13 mail contract routes operating the first half of

1927, the income figures were:—Mail income, \$773,281. Passenger income (figured at 13 cents per machine-mile, estimating all passengers as paying and flying the entire route, actual passenger miles not being known), \$70,140. Total, \$843,421.

In addition to mail and passenger incomes on actual airway operation are the sums received for taxi, sightseeing and miscellaneous air operations and express which are not included in these figures.

CROYDON AERODROME IMPROVEMENTS

THE first important step towards the completing of the improvements to the London Terminal Aerodrome, Croydon, was made on December 9, when the Secretary of State for Air, Sir Samuel Hoare, opened the new road known as

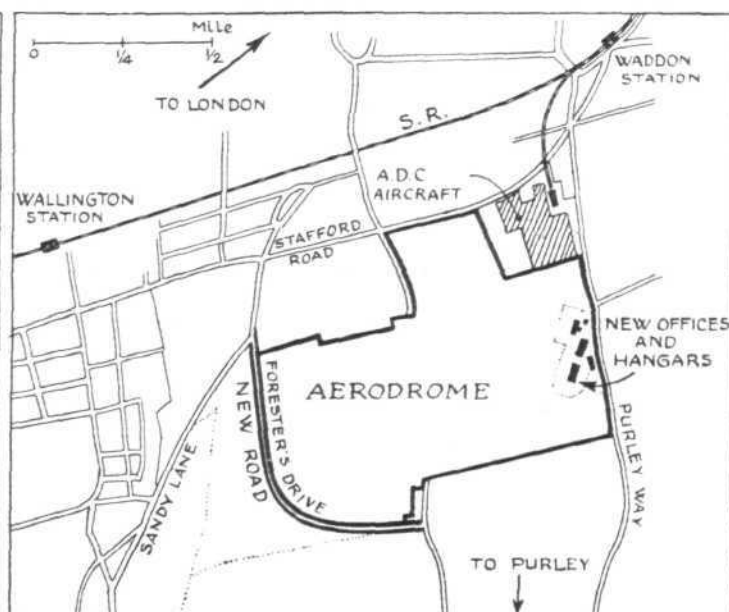
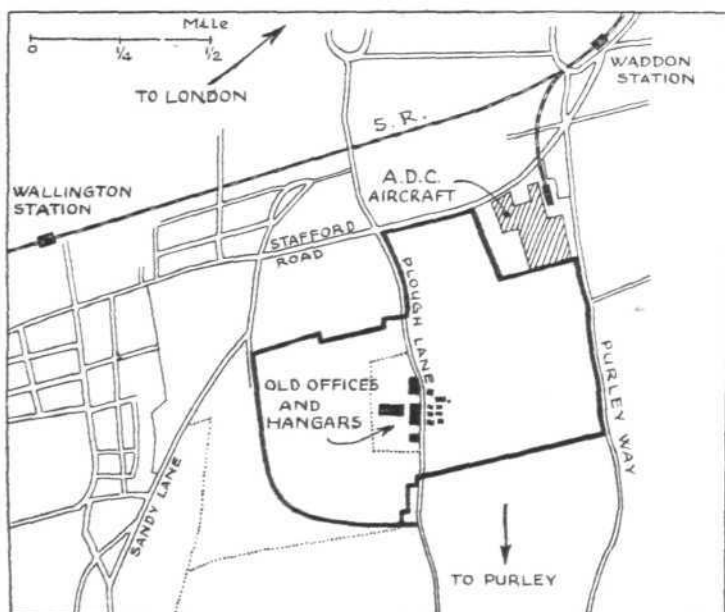
Forester's Drive, a mile and a quarter long, extends on the western boundary of the aerodrome from Sandy Lane (turning out of Stafford Road) to the southern extremity of Plough Lane at Purley, and has been constructed, at a

□ □ □ □ □ □ □ □
□ Croydon Aero-
□ drome Improve-
□ ments: Lady
□ Maud Hoare
□ about to cut the
□ tape across the
□ new road, Fore-
□ ster's Drive,
□ which takes the
□ place of Plough
□ Lane, now closed
□ in order to com-
□ plete the exten-
□ sion of Croydon
□ aerodrome. Sir
□ Samuel Hoare is
□ seen on the left,
□ and on the right,
□ next to Lady
□ Maud, is Mr. G. I.
□ Hitchings, J.P.,
□ Chairman of the
□ Beddington and
□ Wallington Urban
□ District Council.
□ □ □ □ □ □ □ □



Forester's Drive. This road has been constructed to take the place of Plough Lane, the road bisecting the aerodrome and now to be cleared away together with the present terminal buildings and hangars.

cost of about £50,000, by the Air Ministry, under the supervision of the Ministry of Transport. At 3.20 p.m. on December 9, Sir Samuel Hoare, accompanied by Lady Maud Hoare, was received at the aerodrome by Mr. F. G. L.



CROYDON AERODROME IMPROVEMENTS: Sketch maps showing Croydon aerodrome (left) old style—with Plough Lane, offices and hangars in the centre—and (right) as it will be under the new scheme, Plough Lane being replaced by the new road, Forester's Drive.

Bertram, Deputy-Director of Civil Aviation, who presented Mr. G. I. Hitchings, J.P., Chairman of the Beddington and Wallington Urban District Council—in whose area the new road and Croydon Aerodrome are situated—and Mr. E. J. Holland, D.L., J.P., Chairman of the Surrey County Council.

After further presentations of parties concerned, Mr. Bertram asked Sir Samuel Hoare to declare the road open, and this being declared, Lady Maud Hoare cut, with a pair of golden scissors, the tape spanning the road. Mr. Hitchings then accepted the custody of the road on behalf of the Council, handing to Sir Samuel a certificate stating that the road had been constructed and completed to the satisfaction of the authorities. The party then proceeded along the new road, and cut a second tape at the other end.

On declaring the new road open, Sir Samuel said he was sure the road would add greatly to the safety, security, and efficiency of the aerodrome. He said he hoped also it would add to the convenience and prosperity of the neighbourhood.

The levelling of Plough Lane on the aerodrome itself is being started immediately—only that portion of the lane leading into Stafford Road being kept in service for the removal of the old buildings, etc. The latter, consisting of war-time buildings grouped on either side of Plough Lane in the centre of the aerodrome, and which have up to now been employed as terminal offices and hangars, will be demolished in January next.

At the same time the new terminal buildings and hangars, which have been constructed on the eastern side of the aerodrome, will be occupied. These new buildings are a vast improvement on the old ones, and are worthy of a big terminal air port. They include an imposing block of buildings, in the centre of which is the 80-ft. control tower. On the

ground floor of the latter are the offices for pilots and aerodrome officials; above this is the meteorological office. The buildings on either side, which have a flat roof that can be employed on special occasions as a grand stand, are two storeys high and comprise the waiting rooms for passengers, Customs, booking offices, buffet and hotel, and other administrative offices.

Next to the above are the huge ferro-concrete hangars, with workshops and stores attached, each 300 ft. by 150 ft. Extending in front of the hangars, and also the other buildings, is a large expanse of concrete, so that the mud and dust of the old quarters will be unpleasant memories of the past.

Improved lighting operations will be introduced, the old flashing cone lighthouse being replaced by a Neon beacon mounted on the top of the end (south) hangar, while illuminated wind vane indicators, together with a portable flood light, replace the old sunken landing "L."

Except for a directional wireless aerial on the Control Tower, all wireless installation will be located at Mitcham, a few miles away, being operated by a remote control from the Tower at Croydon.

As regards the aerodrome itself, with Plough Lane swept away, machines will have a clear unobstructed run for taking off and landing of over half a mile in a south-westerly direction—the direction of prevailing winds at Croydon.

Thus, all these, and many other improvements, will go to make the London Terminal Aerodrome one of the best in the world. There is one additional improvement that we would like to see adopted—and that is the utilisation of the branch railway line from Waddon to the former Aircraft Disposal Works, with an Aerodrome station and a good service of trains to and from London.

The Royal Aero Club and Christmas

THE Royal Aero Club announces that from 3 p.m. on Saturday, December 24, and on Christmas Day, Monday and Tuesday, December 25, 26 and 27, luncheons, dinners and teas will not be served and the bar will be closed, breakfasts only being served to members staying in the club.

The "House" Entertains the Schneider Team

A VERY interesting banquet took place at the House of Commons on Tuesday last, the 6th instant, when Viscount Curzon and Sir Harry Brittain entertained the Schneider Team. There were about one hundred M.P.'s present, representing all parties, and it was stated to be one of the most interesting banquets ever held in the House of Commons. It was remarkable for the fact that distinguished members of the Labour and Liberal parties were whole-heartedly in favour of Government assistance being given for next year's Schneider Trophy Race. The Secretary of State for Air, the Right Hon. Sir Samuel J. G. Hoare, was present and the principal speakers were Lord Hugh Cecil, Mr. Philip Snowden, and Sir John Simon.

The Liverpool Model Aero Club

A MODEL Aero Club has just been formed in Liverpool, with Mr. E. R. Wilson as Chairman, Mr. G. H. Kilshaw as Treasurer, and Mr. F. A. Lowe as Secretary. At the time of formation the membership was sixteen, and it is the intention in due course to affiliate with the Society of Model Aeronautical Engineers. Any reader interested in this Club and requiring further particulars should apply to the Secretary, 19, Isabel Grove, Tuebrook, Liverpool.

Paris-Hanoi Flight Project

FRENCH airmen are proposing to fly from Paris to Hanoi in Indo-China and back in the shortest possible time. It is hoped that by flying day and night the outward flight might be made in five days. The crew will consist of Lieut.-Col. Antoinat (commander) and Sergt. Lefevre as navigators, Lieut. Mion and Sergt. Assolant as pilots, and Sergt. Bosson as mechanic. They will use a Liore et Olivier Le O.25 military biplane fitted with two 420 h.p. Gnome-Rhone-Jupiter engines. The machine has been named Georges Guynemer.

Ross Smith Statue Unveiled

ON December 10 the statue of the late Sir Ross Smith, F.R.G.S., was unveiled at Adelaide by Sir George Murray, Lieut.-Governor of South Australia. The date of the ceremony was the eighth anniversary of the landing at Port Darwin on the memorable flight from England. Sir Ross Smith's brother, Sir Keith Smith, and Lieut. W. H. Shiers, both of whom took part in the flight, were present, as well as many R.A.F. officers, whilst a squadron of aeroplanes circled the site. Sir Ross Smith and Lieut. J. W. Bennett, who was also

one of the former crew, were killed when testing a machine at Brooklands in April, 1922, in which they had proposed to fly round the world.

Avro Export Activities

THE Avro is attracting a good deal of interest abroad. Within the next few weeks machines will be shipped to South Africa, Australia, Argentina, Newfoundland and Uruguay. Lady Heath's "Avian" accompanied her to South Africa, where she hopes to do a good deal of flying. The machine for Newfoundland has been purchased by Bowring Bros. for use in co-operation with their Sealing Fleet. Up to the present they have been using the special Avro "Baby" seaplane, which was built for Sir Ernest Shackleton's last Antarctic Expedition, and it was returned to England when the expedition was abandoned and immediately bought by Bowring's. This machine has been flown for a very considerable time, latterly by the famous American pilot, C. S. Caldwell. Bowring Bros. have now purchased the "Avian" to supplement their fleet. The "Baby" seaplane is alternatively equipped with skis, and the "Avian" will also be fitted up in the same way whenever it is necessary for it to alight on and take off from snow. The machine for Australia has been purchased by Wings, Ltd., of Broken Hill, N.S.W., who have opened a flying school at which "Avians" will be used exclusively.

R.A.F. Sport

THE R.A.F. team beat Oxford University by six goals to three at Oxford on December 7.

The R.A.F. Club beat the Paris Squash Rackets team in the R.A.F. club's courts by three matches to two on December 7.

The R.A.F. met the Brigade of Guards in a boxing match at Uxbridge on December 8 and at the interval they held a lead of seven to one, but the match eventually ended in a tie. Air Marshal Sir John Salmond presented the prizes.

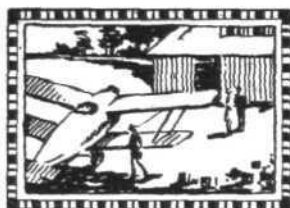
Royal Air Force Flying Accident

THE Air Ministry regrets to announce that as the result of an accident at Enfield to a Fairey Fox machine of No. 12 (Bombing) Squadron, Andover, on December 3, Flying Officer Robert Darley Whelan, the pilot of the aircraft, and 357736, A.C.2. Henry Arthur Lacy were killed.

The Royal Air Force Memorial Fund

THE usual meeting of the Grants Sub-Committee of the Fund was held at Iddesleigh House on December 1. Mr. W. S. Field was in the chair, and the other members of the committee present were:—Mrs. L. M. K. Pratt-Barlow, O.B.E., Squad.-Ldr. Douglas Iron, O.B.E. The committee considered in all 11 cases, and made grants to the amount of £155 16s. The next meeting was fixed for December 20, at 2.30 p.m.

PRIVATE FLYING



A Section of FLIGHT in the Interests of the Private Owner, Owner-Pilot, and Club Member

DIRECTOR OF CIVIL AVIATION VISITS THE E.K.F. CLUB

SIR SEFTON BRANCKER visited the East Kent Flying Club at Lympe, on December 5, to confer with the Committee on the question of their organisation. He flew down in a D.H. "Moth," piloted by Capt. H. Broad, the test pilot. The machine was fitted with the Handley-Page slotted wing device. On the way, a call was made at Penshurst Aerodrome, where Sir Sefton was met by Sir Robert Gower, who will be the President of the proposed Tunbridge Wells Club. Through the courtesy of Sqd.-Ldr. Parkes, an escort of nine Gloster "Grebes" from No. 23 (Fighter) Squadron were to have met the Director of Civil Aviation, but this was not carried out, owing to the "Moth" arriving at Lympe an hour early. Two "Grebes," however, that were out early, sighted the light plane and took up a position on each side until it landed. Sir Sefton was met by Mr. Little, Mr. R. Dallas Brett and Commander Deacon, C.A.T.O., and an hour's consultation followed. Then a return was made to the aerodrome and a number of the Club members were introduced.

Capt. Broad next flew the "Moth" and Mr. Little and Mr. Dallas Brett were his passengers. The effect of the slotted wing device was clearly demonstrated, revealing an apparent impossibility of spinning after stalling, despite the pilot's efforts. Sir Sefton was then entertained to lunch at the Hotel Imperial, Hythe, by the Committee, and amongst the guests were: Sqd.-Ldr. Parkes, who has consented to serve on the Committee; Capt. Broad; Flt.-Lt. Smith; and Com. Deacon. Among the members were, the Chairman, Major F. W. Butler, Dr. Whitehead Reid, Mr. Braddell, Mr. A. Dallas Brett, Mr. Little, Mr. Baker, Mr. Lewis, Mr. Everndon, Mr. Faraday, and Mr. R. Dallas Brett.

In his speech the distinguished guest stated that the Air Ministry hoped that when the subsidy ceased in three years'



WITH THE EAST KENT F.C. at LYMPNE: In conversation with Capt. H. S. Broad, who is seated in the D.H. "Moth" are (left to right):—Capt. Braddell, Air Vice-Marshal Sir Sefton Brancker and Mrs. Marie Coleman. This "Moth" in which Sir Sefton flew down from Croydon was fitted with the Handley Page slotted wing device, and was demonstrated at Lympe by Capt. Broad.

panied by two lady members, Mrs. Twaites and Mrs. Marie Coleman.

Sir Sefton Brancker then flew back to Croydon.

In conclusion, it may be of interest to note that Dr. White-



SIR SEFTON BRANCKER'S VISIT TO LYMPNE: This group welcomed the Director of Civil Aviation on his arrival at Lympe on December 5 in a D.H. "Moth" light aeroplane piloted by Capt. H. Broad. They are mostly members of the new East Kent Flying Club. Reading from left to right and commencing at the fourth from the end they are:—Mr. T. A. M. Lewis, Mr. P. D. Baker, Capt. H. Broad, Mr. H. E. Little, Mr. A. Dallas Brett, Mr. R. Dallas Brett, Mrs. Marie Coleman, Sir Sefton Brancker, Miss Eileen Martin, Mr. Lowe, Dr. Whitehead Reid, Mr. Faraday, Commander Deacon, Capt. Jarman, Capt. Braddell and Mr. F. J. Harlow.

time, there would be a series of clubs all over the country in a flourishing condition, which the Ministry could hand over to their proprietors, who would then have to prosper on their own account.

The Ministry looked to the wealthy men in each county to lead the light plane movement, which was an intensely patriotic movement, and as such deserved to be supported. He hoped the wealthy people of East Kent would come forward in a patriotic spirit and support this Club.

On the return to the aerodrome, after the luncheon, Capt. Broad further demonstrated the slotted wing, accom-

panied by two lady members, Mrs. Twaites and Mrs. Marie Coleman. head Reid, one of our oldest private owners, whose own private aerodrome is near Canterbury, Kent, is waiting delivery of a Westland "Widgeon III" fitted with an Armstrong-Siddeley "Genet" engine. He owned two machines until recently, an Avro and S.E.5a, both installed with Renault engines, but he has now sold the Avro. Such an experienced member will be an advantage to the club. Another member is Mr. E. T. Worsell, who owns a Curtiss biplane fitted with a 100 h.p. engine. An American machine will be rare amongst the club machines and will attract considerable interest.

THE MIDLAND AERO CLUB LUNCHEON AT BIRMINGHAM

THE Midland Aero Club gave a luncheon at the Queen's Hotel, Birmingham, on December 9, at which the Lord Mayor (Alderman A. H. James) officiated as Chairman and the principal guest was Air Vice-Marshal Sir Sefton Brancker. In his speech the Lord Mayor said he was forced to ask whether in connection with civil aviation history would repeat itself, and that the English nation would wake up at the eleventh hour and find themselves hopelessly in arrears. Compared with progress made on the Continent he thought they had every reason to complain that as a nation they were not abreast of modern requirements in civil aviation.

He thought he could see the time when the equipment of our large industrial concerns would not be complete without its aviation side, and when Castle Bromwich Aerodrome would probably be used as a starting-off place for commercial enterprises when people wished to get into direct touch with the Continent. He pressed the claim of the Midland Aero Club to the greatest possible amount of public support for its progress. It had done extremely good work, it was capable of doing much better, given a certain measure of Government plus public support.

Sir Sefton Brancker then referred to the British achievements in the production of light aeroplanes and said that the public should be educated to the use of this new form of transport. The Midland Aero Club had a record remarkably free from accidents and stood high for safety and reliability in flying—in fact, no club had a better record. One reason why such clubs were supported was that air transport was growing in every other country in the world. Britain, naturally, suffered from its disadvantageous geographical position on the edge of Europe, which now possessed over 50,000 miles of authorised air lines.

Last year 17,000,000 miles were flown on these routes, but this country's share was only 850,000 and Australia's 450,000 miles. This was wrong. This country did not understand what the figures meant. There were 19 or 20 air lines operating from Berlin every day in every direction—Norway, Sweden, Russia, France and Spain. The people there had the advantage of seeing civil aviation regularly, took it as a matter of course, and were prepared to encourage it.

Air transport was more important to England than any other nation in the world, both from warlike and trade points

of view. Generally, it did not pay, but they could see civil aviation in front of them as a commercial proposition, and the time was nearer than was thought.

Possibly, in five years some lines would pay, and many more in ten years. When commercial aviation did pay there would be a tremendous boom, then they might well see the picture foreshadowed by the Lord Mayor—airships leaving Birmingham for the Continent. Sir Sefton referred finally to the future of the Clubs and mentioned that the policy of the Air Ministry was one of non-interference.

Mr. H. A. Pepper, Chairman of the Midland Aero Club, claimed that the Club started before military aviation was thought of, and despite the war interruption it had resumed its activities with such effect that it now possessed 213 members, of whom 82 were flying members. Forty-two members flew regularly and 22 were under instruction. He was afraid that people did not know what a tremendous amount of work the Club had done during the last two years.

The members had flown 92,000 miles during that period without accident and had every reason to feel proud of the light aeroplane. It would be a great advantage for any big industrial centre to possess an aerodrome near the city. There was an opportunity of securing a place for an aerodrome within two miles of Birmingham as the City was going to take over Perry Barr.

Major R. C. Vernon Brook said that Chambers of Commerce could do much to help aviation. Birmingham had come top in the manufacture of tubes for metal aeroplanes and certain alloys of great importance in engine construction.

Mr. Gilbert Vyle claimed that Birmingham had not done so bad in respect to civil aviation as compared with some places. Even now there was not much in the way of starting a Continental service from Castle Bromwich and taking business men to Paris or Amsterdam, and he felt that such a scheme would meet with good response.

Other guests present included:—Brig.-Gen. Ludlow, Brig.-Gen. P. C. R. Groves, Col. J. L. Mellor, Col. W. E. Matthew, Major B. T. J. Ford, Major Jackson, Sir David Davis, Sir Percival Bower, Sir Charles Rafter (Chief Constable), Sqd.-Ldr. J. A. C. Wright, Mr. J. D. Siddeley, Mr. H. A. Butler, Mr. G. H. Lanchester, Mr. Wilfrid Hill, Councillor W. Griffith, and Major Dennison.

LIGHT 'PLANE CLUBS

London Aeroplane Club, Stag Lane, Edgware. Sec., H. E. Perrin, 3, Clifford Street, London, W.1.

Bristol and Wessex Aeroplane Club, Filton, Gloucester. Secretary, Lieut.-Col. C. Fleming, Filton Aerodrome, Patchway.

Hampshire Aero Club, Hamble, Southampton. Secretary, Maj. Ross White, Hamble, Southampton.

Lancashire Aero Club, Woodford, Lancs. Secretary, C. J. Wood, Oakfield, Dukinfield, near Manchester.

Midland Aero Club, Castle Bromwich, Birmingham. Secretary, Maj. Gilbert Dennison, 22, Villa Road, Handsworth, Birmingham.

Newcastle-upon-Tyne Aero Club, Cramlington, Northumberland. Secretary, A. H. Bell, c/o The Club.

Norfolk and Norwich Aero Club, Mousehold, Norwich. Secretary, H. O. Bennett, 5, Opie Street, Norwich.

Nottingham Aero Club, Hucknall, Nottingham. Hon. Secretary, Cecil R. Sands, A.C.A., Imperial Buildings, Victoria Street, Nottingham.

The Scottish Aero Club Movement, 101, St. Vincent Street, Glasgow. Secretary, Harry W. Smith.

Suffolk Aeroplane Club, Ipswich. Secretary, Courtney N. Prentice, "Hazeldean," Stowmarket, Suffolk.

Yorkshire Aeroplane Club, Sherburn-in-Elmet, Yorks. Secretary, D. M. N. Coles, The Aerodrome, Sherburn-in-Elmet.

LONDON AEROPLANE CLUB

REPORT for week ending December 11.—Flying time, 8 hrs. 30 mins.; dual instruction, 2 hrs. 45 mins.; solo flying, 5 hrs. 25 mins.; passenger flights, 20 mins.

Dual instruction.—With Capt. F. G. M. Sparks: H. M. Samuelson, Colonel Hume, Rich Hayes, Miss Wilson, H. Kennedy. With Capt. S. L. F. St. Barbe: J. A. Simson, J. Barros, A. J. Mulder.

Solo flying.—H. M. Samuelson, R. Sanders Clark, C. E. Murrell, J. J. Hofer, W. Hay, G. H. Craig, Major Beaumont, A. R. Ogston, H. Petre.

Passenger flights.—With Capt. S. L. F. St. Barbe: Mrs. Carberry.

Christmas closing.—The Club will be closed down on the evening of Thursday, December 22, and will re-open on the morning of Thursday, 29th.

BRISTOL & WESSEX AEROPLANE CLUB

FLYING report week ending December 10.—Flying time, 5 hrs. 10 mins.; instruction, 3 hrs. 20 mins.; soloists, 1 hr. 50 mins.

Instruction (under Mr. E. B. W. Bartlett): Messrs. Hon. B. L. Bathurst, A. E. Arnold, F. J. Farr, B. H. Bryan, A. E. Stephens.

Soloists under instruction: Messrs. Hon. H. C. H. Bathurst, A. H. Downes-Shaw.

"A" Pilots: Mr. C. E. Pitman.

Flying was only possible on Sunday and Saturday.

The Club will close for the Christmas Holidays on December 22, and will reopen on Saturday December 31.

HAMPSHIRE AEROPLANE CLUB

REPORT for week ending December 8.—Total flying time, 4 hrs. 20 mins.; instruction, 2 hrs. 15 mins.; solo, 1 hr. 40 mins.; test flights, 25 mins.

Instruction with Flight-Lieut. Thomson:—Capt. Molyneux, M.C., Lieut. Graham, R.N., Capt. Kirby, M.M., R.N.R., Mr. Cripps, Mr. Hall, and Mr. Berry.

Lieut. Graham was the only licensed soloist, the unlicensed soloists being Capt. Molyneux, Mr. Cripps, Mr. Fawkes, and Mr. Hall.

Fog and rain prevented flying practically all the week, so the opportunity was taken to change the engine in GE-BOH.

On Wednesday, Mr. Hall, who is only 16 years of age, made an excellent first solo flight after six hours' dual. He flew his second solo on Friday equally well. Unfortunately for this club, he is sailing for South Africa on the 15th of this month, but we trust our loss of such a promising pupil will be to the advantage of aviation in the Colony.

LANCASHIRE AERO CLUB

REPORT for fortnight ending December 10.—Flying time, 26 hrs., 25 mins. Instruction, 12 hrs. 25 mins. Solo flights, 8 hrs. 15 mins. Passenger flights, 4 hrs. Tests, 1 hr. 45 mins.

Instruction with Mr. Brown:—Messrs. Cohen, Heath, Tweedale, Browning, Hall, Chart, Eills, Gort, Allott, Barlow, Brooking, Crosthwaite, Weale, Pattieaux, Miss Hill and Miss Baerlein.

Soloists (under instruction): Messrs. Ruddy and Browning.

Pilots: Messrs. Slater, Rowley, Meads, Costa, Nelson, Michelson, Crosthwaite, Twemlow, and Lacayo.

Passengers (with Mr. Lacayo): Messrs. Hartley and Mayall. (With Mr. Michelson): Miss Cotsworth. (With Mr. Twemlow): Messrs. E. Twemlow, Allott and Hale. (With Mr. Brown): Mr. Leeming. (With Mr. Scholes) Messrs. Fletcher, Crabtree, Etchells and Shackleton.

We have no humorous comments to offer this week, because there is a strong north-east wind blowing with great persistence and the writer has never yet been able to discover anything in the least humorous about a strong north-east wind.

Mr. Browning did his first solo this week and is coming on well. About next May, when we may expect a temporary break in the clouds, it is hoped that he will get a chance of accomplishing his height test.

In order to give the staff a holiday, flying will cease from Friday evening, December 23, and will recommence (weather permitting) on Saturday morning, the 31st.

MIDLAND AERO CLUB LIMITED

REPORT for week ending December 3, 1927.—Total flying time, 7 hrs. Instruction with Mr. McDonough. Messrs. Lattey, Darlington, Ellison, Duckitt and Wynn.

Solo flights: Messrs. Ellison, Brighton, Bednell, J. Brinton and Perry. Mr. A. Ellison completed a satisfactory first solo flight. Rain and continuous low clouds has again restricted flying.

REPORT for week ending December 10, 1927.—Total flying time, 8.35 hrs. Instruction with Mr. McDonough: Messrs. Wynn, Lane, H. Lattey, G. Robson, Darlington.

Solo flights: Messrs. Jackson, Willis, King, Brighton and Bednell.

Passenger flight with Mr. Brighton: J. Moore.

Passenger flight with Mr. Jackson: Messrs Brighton and E. Mann.

A very successful luncheon was given by the Club to Air Vice-Marshal Sir Sefton W. Branker on Friday last, which was presided over by the President of the Club, the Rt. Hon. the Lord Mayor of Birmingham (Alderman A. H. James) at which a number of gentlemen prominent in local industries attended. In response to an appeal for funds Messrs. N. B. and J. D. Graham, proprietors of the *Wolverhampton Express and Star*, have presented a new machine to the Club, and promises of assistance were also received from Messrs. W. Howard, J. McAlpine, Sir Edward Iliffe, Colonel Matthews, British Thomson Houston Co., and Lewis's, Ltd.

On Friday evening a very interesting Lecture was given by Squadron-Leader Johnston in the Midland Institute, Birmingham on the "Secretary of State for Air Flight to India."

NEWCASTLE-UPON-TYNE AERO CLUB

REPORT for week ending December 11.—Total time, 15 hrs. 25 mins. Solo (training), 1 hr. 35 mins. "A" Pilots, 5 hrs. 55 mins. Passengers 25 mins. Tests, 10 mins.

Dual Instruction (with Mr. Parkinson): Miss Rambaut, Messrs. R. J. Dickinson, Stobie, Hayton, Edmundson, Griffiths, Horn, V. Heaton and Dr. Alderson.

Solo (instruction): Mr. De Pledge, Mr. Stobie.

"A" Pilots: Miss Leathart, Mr. D. Wilson, Mr. C. E. Shaw, Mr. F. L. Turnbull, Mr. C. Thompson, Mr. R. N. Thompson, Mrs. Heslop, Mr. Baxter Ellis, Mr. A. Bell.

Passengers (with Mrs. Heslop): Mr. C. Thompson; (with Mr. C. Thompson), Mr. Luckman, Mrs. Heslop; (with Mr. Baxter Ellis), Mr. Luckman, Mr. Easey.

The fog which has been experienced for almost three weeks without abatement, and with only slight variation of density, still persists.

Mr. Rimmer and Mr. Nash, of the Berkshire Aviation Tours, called at the Aerodrome on Friday, and, owing to the bad visibility, which had been becoming gradually worse during their journey from Berwick, they had to remain overnight.

NORFOLK & NORWICH AERO CLUB

REPORT for week ending December 11.—Total flying time, 10 hrs. 30 mins. Instruction with Capt. Lines.—Messrs. N. Paul, N. Brett, R. F. Potter, G. E. Barker, G. F. Surtees, H. Barratt, G. F. Meagre.

Passengers: Miss O'Keiff, Miss Scott, Mr. J. F. Betts, Mr. Creasy. Soloists: Messrs. W. A. Ramsay, W. P. Cubitt, C. A. Rea, H. Pank, R. Harmer.

NOTTINGHAM AERO CLUB

REPORT for week ending December 9.—Total flying time, 13 hrs. 20 mins. Dual instruction: 10 hrs. 50 mins.; Solo: 1 hr. 20 mins.; Passenger and tests: 1 hr. 10 mins.

Dual instruction with Mr. B. Martin: Messrs. Cox, Weldon, Blake, Wilcox, Walter Glenn, Calladine, Whitby and Pilgrim.

Solo (under instruction).—Messrs. Sands, Hallam and Wilcox.

Passenger.—With Mr. B. Martin: Messrs. Walter Briggs, Green, Bryant and the Wilcox twins.

Flying has been possible on 5 days last week, although the visibility has been bad. Wilcox joined the soloists this week—his general deportment, both in the air and subsequently, being up to standard.

SUFFOLK AEROPLANE CLUB

REPORT for week ending December 11.—Flying time, 5 hrs. 35 mins.

Instruction, with Mr. Lowdell: H. Billinton, G. Hutley, N. Creasy. (With Mr. C. N. Prentice): Miss Sylvia Edwards, N. Creasy, F. Jolly, S. Schofield, K. Peck, G. Hutley, T. Marriage, F. Vervy, R. Brown.

Passenger (with Mr. Prentice): Mr. Wyatt.

Soloists: Dr. Jas. Sleight, S. Schofield, N. Creasy.

Our public appeal for a second machine and hangar was launched this week and we have to date received £254.

The furnishing of our Club House is almost complete. All the furniture has been generously given by the members. Our President, The Hon. Lady Bailey, has given four comfortable arm chairs with cushions and Mr. and Mrs. H. Billinton have given a set of four extremely nice oak tables; Mr. Schofield, a wheel-back chair; Mr. and Mrs. F. Clifton, curtains; Mr. and Mrs. C. N. Prentice, gramophone and records, gate-leg table and wheel-back chair.

YORKSHIRE AEROPLANE CLUB

REPORT for week ending December 10, 1927.—Flying time, 8 hrs. 5 mins. Instruction: 3 hrs. 45 mins.

Soloists: 2 hrs. 55 mins.

Passengers: 1 hr. 25 ins.

Instruction (with Capt. Beck): Miss Watson, Messrs. Clayton, G. Thomson, Hepworth. (With Mr. Stockbridge): Mr. Ostler. (With Mr. Carter): Mr. Evans.

Solo instruction: Mr. Ellison.

"A" Pilots: Messrs. Thomson, Norway, Wood.

Passengers (With Capt. Beck): Mr. Beazer. (With Mr. Wood): Mr. Clayton. (With Mr. Thomson): Mr. Beazer.

"FOG"

A PAPER under what must surely be the shortest title on record, "Fog," was read by Capt. F. Entwistle, B.Sc., before the R.Ae.S., & I.Ae.E. on December 8. If the title was short, the paper itself was very long, and it is obviously impossible for us to give it in full here. Moreover, the bulk of the paper dealt with what may, perhaps, be termed the meteorological aspect of fog, a subject which is best left to the specialists. The two concluding chapters of the paper were however, devoted to subjects of very direct interest to aeronautical folk, and are, therefore, given below.

Fog Dispersion

The subject of fog dispersion is one which has received a considerable amount of attention in the past, and also one about which there has been much speculation. In a laboratory it is a simple matter to manufacture or disperse a fog artificially, but the step from a laboratory experiment to a practical commercial process is a very large one. One of the difficulties attending the operation of any method of fog dissipation on a large scale is that in a fog the air is never still, and much more energy would be required to clear a given area than would be required if the fog were stationary and there were only a definite volume with which to deal.

From a consideration of the conditions governing the formation of fog, the possible methods of dispersion that suggest themselves are:—

- (1) By artificially warming the air over the area to be cleared so that the fog is evaporated; or
- (2) By forcing in from above the fog, either by propulsion or suction, sufficient dry air to clear the area of fog.

There is also the possibility of using an electrical method in which the air is subjected to a very strong electric field. As long ago as 1884 Sir Oliver Lodge attempted to dissipate fogs at Liverpool by means of powerful high-tension discharges, and successfully dissipated a fog throughout a space of a few yards from the discharge electrode. An attempt has also been made in America to dissipate a cloud by sprinkling on it from an aeroplane sand charged to 14,000 volts. It is claimed that by this method a single aeroplane was able to dissipate in a few minutes a cloud a mile or two long and 1,000 ft. thick, using about 100 lb. of charged sand. No further details are available, so that it is difficult to form any definite opinion as to this method.

All three methods—thermal, mechanical and electrical—have been considered in this country, and the conclusion reached has been that while each method is capable of clearing a limited volume of air, no one method is applicable to the large scale problem. In connection with the thermal method, Sir Napier Shaw has calculated that, for an aerodrome 400 yards wide with a thickness of 50 ft. of fog, and a cross drift of about two miles an hour, a consumption of 13 tons of coal an hour would be necessary, theoretically, in order to warm the air by 5° F. In practice at least four or five times as much fuel would probably be required. In connection with the mechanical clearing of an aerodrome, it has been computed that the clearing of a fog 80 ft. thick from a limited area, by drawing the air downwards through suitable gratings into subterranean tunnels that would be drained mechanically, would involve a downward current at the surface of the aerodrome of approximately 15 ft. per second. With regard to the electrical method of dispersing fog, it has been shown that all known methods for discharging large quantities of electricity into the air fail on account of the small volume of air affected.

Fog Penetration

If it must be admitted that the problem of the dissipation of fog does not appear capable of an early solution, the question arises as to whether penetration of a fog to provide adequate illumination can be effected. This question is of practical importance from the point of view of enabling the pilot of an aircraft to land in fog. It has already received considerable attention in this country, and as the result of certain tests of different methods of illumination through a fog, a Neon beacon has been installed at Croydon aerodrome for use in foggy weather.

The problem is one of optics, and unfortunately there is very little experimental data at present from which a reliable opinion can be formed as to the probability of an ultimate practical solution. One point which, it seems certain, will have to be taken into account is the fact that smoke fogs and water fogs behave differently in regard to the transmission of light of different wave-lengths. This fact is simply illustrated by the well-known phenomenon that the sun appears red when seen through a London fog, but appears white when seen through a country fog. The explanation is to be found in the sizes of the particles of which smoke fogs and water fogs

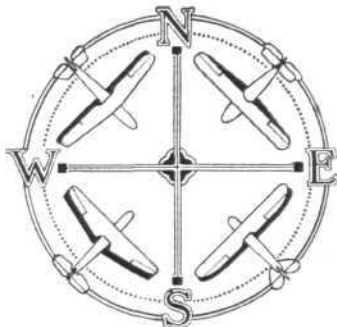
are composed. The former are of the order of 0.5μ , which is comparable with the wave-length of light, while the latter are of the order of 10μ . The smoke particles accordingly scatter only the shorter wave-lengths, the longer red waves being transmitted, while the larger water particles scatter all colours irrespective of their wave-length.

Attention has been drawn recently to the possibility of using infra-red light for fog penetration. Such experimental evidence as is available points to the fact that water fog is not transparent to the wave lengths of the near infra-red portion of the spectrum. Laboratory experiments on the transmission of light of various wave-lengths through an artificial fog, carried out by Utterback, showed that the transmission was granted for wave-lengths between 0.53μ and 0.5μ and that it decreased rapidly towards the red but not so rapidly

towards the violet end. Experiments have also been made in Germany in which a spectrum was projected through a box filled with steam condensed to fog by a cold water jacket, and the greatest absorption was found at the red end of the spectrum.

The available evidence would seem to point to the fact that it may be possible to use infra-red light for the successful penetration of certain smoke fogs, but that it is doubtful whether it would be possible to use rays of this wave-length for penetrating water fogs. Before either question can be settled, however, more decisive experimental evidence is required, apart from any question of evolving a suitable source of radiation and the necessary receiving apparatus for rendering visible the long wave-lengths that would be involved.

AIRISMS FROM THE



FOUR WINDS

Proposed London-Dublin Air Service

NEGOTIATIONS have been proceeding between Imperial Airways and the Irish Free State Government regarding the establishment of a passenger and mail air service between London and Dublin, via Liverpool. It is proposed that this service should be a combined land 'plane and flying-boat service, Handley Page-Napier land 'planes being employed on the London-Liverpool section and Short "Jupiter" all-metal flying-boats being used for the Liverpool-Dublin section. The new service would take four hours as against nearly ten hours by train and boat.

Great Britain at Berlin Show

IN connection with the International Aero Exhibition to be held in Berlin next year from October 7 to October 28, the initials of the German title of which are I.L.A.-28, a German representative is about to visit London for the purpose of discussing with British aircraft and aero engine firms their participation in the exhibition next year. Herr Tetens is manager of the *Reichsverband der Deutschen Luftfahrtindustrie*, which is the German equivalent of our S.B.A.C., and we feel sure he will be heartily welcomed not only by that society but also by individual firms. At the moment the actual date of Herr Tetens' arrival in London is not definitely settled, but if firms desiring to arrange for visits will communicate with the Editor we shall be glad to assist in any way possible. First and foremost Herr Tetens will, of course, wish to visit firms who intend to exhibit at Berlin, but he

will doubtless also like to take the opportunity to visit other firms in this country.

London-Cape Town Flight

MR. CARBERRY arrived at Tripoli from Malta on December 1 and Cairo on December 3, in the evening. On December 13 he made a fine flight from Cairo to Khartoum, 1,200 miles, in 12 hours. He is flying his own Fokker monoplane.

New President of N.A.T. Airways (U.S.A.)

MR. EARLE H. REYNOLDS has just been elected President of National Air Transport, Inc. (N.A.T.), which operates some of the contract air mail and express services in the U.S.A. He fills the place of Mr. Howard E. Coffin, who has been President of N.A.T. since its organisation, and who is now Chairman of the Board of Directors. N.A.T. operates a day and night mail and express service between New York and Chicago, and a day service between Chicago and Dallas via Davenport, St. Joseph, Kansas City, Wichita, Ponca, Oklahoma, and Fort Worth.

Atlantic Hero's Latest Honour

COL. LINDBERGH has been voted the Congressional Medal of Honour, which is the highest award that the United States Congress can bestow. The President of Mexico invited him to fly via Mexico on his flight to Havana, which started on December 13 from Washington. He is flying overland (2,000 miles non-stop to Mexico) in his "Spirit of St. Louis."

French Air Fatality

M. PIERRE CORBU, a French pilot attached to the Farman



VARIETY: "Something for every taste" is a saying that seems to apply particularly to the Avro "Gosport" training machine. Our photograph shows three of these, of which the one in the foreground is fitted with the new Avro "Alpha" engine. The next has an Armstrong-Siddeley "Mongoose," and the last a Gnome Monosoupape.

Air Lines, was killed at Le Bourget with his mechanic, M. Lacoste, on December 10, when testing a Farman 73 biplane fitted with a 420-h.p. Gnome-Rhone-Jupiter engine. The machine was one of the oldest in the service in use for short passenger flights. The pilot was stunting and during a loop the mechanic fell out. Through some uncertain reason the machine then dived, broke in pieces in the air and crashed, killing the pilot. M. Corbu was the companion of M. Givon on an attempt to cross the Atlantic to New York this year. Their machine, "Oiseau Bleu," returned after a few hours flying, owing to bad weather.

Faked "Records" Sequel

THE Committee appointed to enquire into the case of the French pilot, M. Callizo, who claimed many altitude records that he had not made, has recommended his expulsion from the Legion of Honour. They gave him the benefit of the doubt concerning the record for which he was awarded the Legion of Honour Order, but this did not prevent the verdict.

French Commercial Aviation

COMMERCIAL aviation came under debate during a discussion of the air estimates in the French Chamber on December 11. It was suggested that the French tax-payer was not getting good value for the large amount of money spent. Concerning the Latécoère project for linking north-west Africa and South America by air, it was stated that a service was already working over a distance of 500 miles along the South American coast from Natal, Brazil, to Buenos Aires. It was hoped that by January, machines would carry mails from France to Cape Verd Islands, whence fast steamers, plying to the Island of Fernando de Noronha, would connect with the other air line there to the American coast. The service between Marseilles and Algiers was also criticised.

It was said to miss half the flights and that it had cost the country about £16,600 whilst carrying only 20 lb. of mail.

Airships for Ceylon?

SITES for airship bases at five alternative coast towns within 80 miles north and south of Colombo have been found by the Air Ministry officials visiting Ceylon in the course of their Empire tour.

Afghanistan's King at Karachi

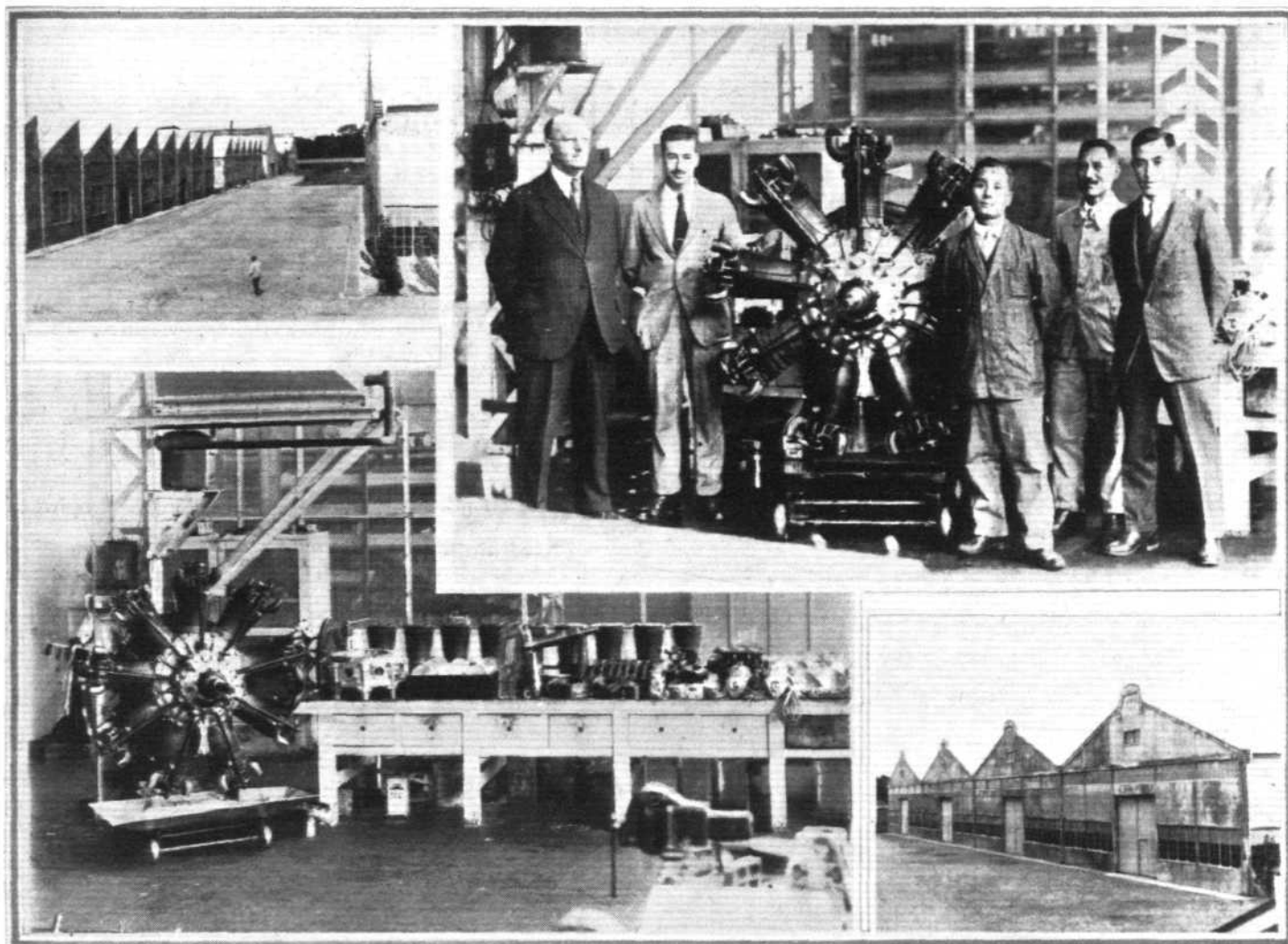
THE King of Afghanistan visited the Air Force Base at Karachi on December 12, and was met by Air Vice-Marshal Sir Geoffrey Salmond, Air Officer Commanding, India, and Wing-Commander R. J. Bone. The King inspected workshops, stores and sheds; witnessed an exhibition of flying, then went to the airship base where the huge shed is nearing completion. Passing to the civil aerodrome, the King saw the Avro "Avian" in which Capt. Lancaster and Mrs. Keith Miller are flying to Australia, and congratulated them. When the Royal party sailed for Bombay later, three R.A.F. flying-boats and eighteen aeroplanes escorted the boat for some miles. His Majesty would have made a flight had there been time.

A New "Safety Fuel"

THE French Air Union are adopting a new "safety fuel" for their machines after successful experiments on flights between London and Paris. It is stated that this fuel was poured on a petrol-soaked rag and the flames were extinguished.

New Autogyro

DURING the past year France paid half a million francs for an autogyro invented by an Italian engineer, Vittorio Isacco. This was the machine in which the British Air Ministry has been reported to be interested and is supposed to have purchased the plans. Experiments with it at Le Bourget have been delayed by a minor accident.



"JUPITERS" IN JAPAN: The first Bristol "Jupiter" built under licence in Japan has just completed its 50 hours' type-tests, concerning which the following telegram has been received: "First Jupiter Series VI, compression ratio 6.3 to 1 made by Nakashima Aircraft Works Company have successfully completed type tests of absolutely clean sheet. Fuel consumption pints per b.h.p.-hour low. Oil consumption pints per hour very low. Everyone very pleased. Full report follows by mail." The group of people standing by the "Jupiter" includes Captain Burgoine, Mr. Hope and Japanese officials. Below, the first "Jupiter" built in Japan, with a number of engine parts on the bench behind. The two smaller photographs show the engine works of the Nakashima Company.

THE ROYAL AIR FORCE

London Gazette, December 6, 1927.

General Duties Branch

Sqdn.-Ldr. G. W. Roberts, M.C., is placed on half-pay, Scale B (November 24) to December 1, inclusive.

The following Pilot Officers on probation are confirmed in rank:—H. H. Blison, G. M. Buxton, J. R. Whitley, T. M. Abraham, R. J. Carvell, A. A. Rumsey, N. W. K. Seeman (July 17); L. S. Hill (July 21); J. W. Pease (August 26); H. Broadhurst (October 1); L. Newcombe, J. G. Elton (October 11). Flying Officer J. L. Wingate is seconded for duty with the British Naval Mission to Greece and is granted acting rank of Flight-Lieut. (November 18); A. B. F. Alcock, D.S.C., Capt. R.M., Flying Officer, R.A.F., relinquishes his temp. commn. on return to Marine duty (November 11).

Stores Branch

Pilot Officer on probation E. G. Northway is confirmed in rank, and promoted to rank of Flying Officer (October 9).

Medical Branch

Flt.-Lieut. C. P. Barber is promoted to rank of Sqdn.-Ldr. (November 28).

Chaplains' Branch

The Rev. R. N. Shapley is granted short service commn. as Chaplain, with relative rank of Sqdn.-Ldr. (November 11).

Memoranda

The permission granted to following to retain rank is withdrawn on enlistment in Territorial Army:—Lt.-E. E. Butler (November 1); Sec.-Lieut. F. W. Hunt (November 7). Capt. C. Fairbairn is deprived of permission to retain rank on conviction by Civil Power (September 13).

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

The following are granted commns. as Pilot Officers on probation:—Class A.A.—T. S. Dykes (November 21).

Special Reserve

J. H. Thompson (November 14); G. F. Humphries (November 14); M. E. Morris (November 14); L. V. G. Barrow (November 17).

The following Flying Officers are transferred from Class A to Class C:—F. J. Brunton (June 30); G. S. Brown (November 30). Flying Officer J. W. Brown relinquishes his commn. on completion of service (December 2). Flying Officer W. E. Cowan is removed from the service (November 29).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Air Commodore J. L. Forbes, O.B.E., to H.Q., Inland Area, Stanmore, for duty as Chief Staff Officer, 12.12.27.

Wing Commander N. J. Gill, C.B.E., M.C., to Air Ministry, on appointment as Deputy Director of Tech. Development, 12.12.27.

Squadron Leaders: F. Fernihough, M.C., to No. 23 Group, H.Q., Grantham, instead of to No. 22 Group, H.Q., as previously notified, 1.10.27. L. G. S. Payne, M.C., A.F.C., to R.A.F. Depot, Uxbridge, 5.12.27. A. W. Mylne to R.A.F. Base, Gosport, 2.12.27. A. R. Arnold, D.S.C., D.F.C., to No. 9, Sqdn., Manston, 12.12.27.

Flight Lieutenants: R. C. Savery, D.F.C., to No. 5 Flying Training Sch., Sealand, 21.11.27. H. E. Forrow to R.A.F. Depot, Uxbridge, 4.11.27. H. M. Massey, M.C., to Central Flying Sch., Wittering, 12.12.27. C. A. B. E. Wilcock, A.F.C., to Marine Aircraft Experimental Estab., Felixstowe, 5.12.27.

Flying Officers: L. R. Staddon, A. E. Groom, D.S.M., C. V. Lock, W. F. Rimmer, and P. B. Chubb, to R.A.F. Depot, Uxbridge, 16.10.27. M. W. J. Boxall, to Armament and Gunnery Schl., Eastchurch, 16.10.27. J. A. E. Inkster, to R.A.F. Depot, Uxbridge, 16.10.27. C. H. Paget, W. A. Shorten, and G. B. Collet, to R.A.F. Depot, Uxbridge, 22.10.27. R. Barrett, to Elec. and Wireless Schl., Flowerdown, 28.11.27. G. H. Loughnan, to No. 26 Sqdn., Catterick, 15.11.27. J. R. Jones, to No. 4 Sqdn., Farnborough, 7.11.27. G. H. Walker, to No. 26 Sqdn., Catterick, 15.11.27.

Flying Officers: W. R. Day to Sector Signal Section, North Weald, 11.10.27. C. M. Heard to No. 4 Sqdn., Farnborough, 18.11.27. S. C. Black, M.M., to No. 45 Sqdn., Middle East, 18.11.27. F. C. Rowland to No. 26 Sqdn.,

Catterick, 8.1.28. B. B. Dowling to No. 2 Sqdn., Manston, 24.11.27. V. G. H. Gee to R.A.F. Depot, Middle East, 13.11.27. C. H. V. Hayman to Sch. of Tech. Training (Men), Manston, 9.12.27. H. Buxton to No. 1 Sch. of Tech. Training (Apprentices), Halton, 9.12.27. W. G. Wooliams to No. 99 Sqdn., Bircham Newton, 21.11.27. P. S. Cook to No. 207 Sqdn., Eastchurch, 22.11.27.

Pilot Officers: A. P. de Wouff de Wytt, to Central Flying Schl., Wittering, 22.10.27. P. C. Miller, to R.A.F. Depot, Uxbridge, 1.11.27.

Pilot Officers: D. J. T. Haynes to No. 1 Flying Training Sch., Netheravon, on appointment to a Permanent Commn., 15.11.27. F. L. Lawrence to No. 41 Sqdn., Northolt, 24.11.27.

Stores Branch

Flight Lieutenant P. F. Connaughton to H.Q., Middle East, 18.11.27.

Accountant Branch

Pilot Officers: J. E. Gregson to No. 2 Flying Training Sch., Digby, 23.11.27. R. Cassels to No. 39 Sqdn., Spittlegate, 1.12.27.

Medical Branch

Flight Lieutenant J. McC. Kilpatrick, M.B., to Princess Mary's R.A.F. Hospital, Halton, 28.11.27.

Chaplains Branch

The Revd. J. H. P. Still, B.A., to Elec. and Wireless Schl., Flowerdown, 1.11.27. Rev. R. N. Shapley, M.C., to R.A.F. Depot, Uxbridge, on appointment to a Short Service Commission, 11.11.27.; to H.Q., Mediterranean, 17.11.27.

IN PARLIAMENT

British Guiana, Trinidad, and Barbados Air Services

VISCOUNT SANDON, on December 5, asked the Under-Secretary of State for the Colonies whether the Governments of British Guiana, Trinidad, and Barbados are taking any action on the proposals of the West Indian Civil Air Transport Committee; and when the suggested services are likely to be put into operation?

MR. ORMSBY-GORE: The report of the Committee is now on its way to the West Indian Governments. Until they have had an opportunity of considering the report, I can say nothing as to the action which they are likely to take.

Royal Air Force Compasses

COL. DAY asked the Secretary of State for Air at what periods compasses used on aeroplanes are regularly examined?

SIR S. HOARE: The compasses of Royal Air Force machines are checked, and, if necessary, adjusted periodically as a matter of routine once every four weeks if possible, but on no account less frequently than once every eight weeks. In addition, they have to be examined and adjusted before an overseas or a long cross-country flight and on a variety of other special occasions which are set out in considerable detail in the regulations. The compasses of civil aircraft plying for public service have to be examined and certified within the 24 hours preceding the flight. In addition, the compasses of all civil aircraft are inspected before renewal of the certificate of airworthiness.

Royal Air Force (Pilots)

MAJ. BRAITHWAITE asked for the figures of trained pilots in Germany, France, Italy, Russia, America, and Great Britain?

SIR S. HOARE: The numbers of trained service pilots are:—As regards Great Britain, the present number of qualified pilots in the Royal Air Force, Air Force Reserve, and Auxiliary Air Force is 3,239, of whom 119 are, for medical or other reasons, no longer available for pilot's duties. So far as my information goes, no corresponding official figures have been made public in regard to the United States, France, Italy, or Russia. Germany has no military or Naval Air Service.

War Films Production and Assistance

LIEUT.-CMDR. KENWORTHY asked the Prime Minister what is the policy of His Majesty's Government in giving assistance, with officers and other ranks of the fighting forces and the loan and use of ships and materials, to film companies engaged in making war films; what payment is made to the Treasury for such services and assistance; and whether any benefit accrues to the officers and other ranks engaged?

MR. BALDWIN: It is the policy of the Board of Admiralty, the Army Council, and the Air Council to give assistance, by way of loan of personnel and material, to approved British film companies engaged in making war films, provided that—

- (1) The method of production is entirely approved by the Department.
- (2) Nothing secret is divulged.
- (3) The films are submitted unconditionally for censorship.

- (4) They involve no undue interference with the normal duties of the personnel concerned.
- (5) Any additional expenditure incurred by the Department is repaid by the company.
- (6) A reasonable charge is made to the company for the facilities granted to them, in the form of a fee or a percentage of the profits.

The following financial arrangements have been made with the approval of the Treasury, provisionally and subject to review hereafter in the light of experience.

The Admiralty and the Air Ministry appropriate one-half of the profits payable by the company in aid of their respective votes, the other half being paid to the Departmental Sports Fund, but no payment is made by the company to the Naval or Royal Air Force personnel engaged.

The practice of the War Department is different. The whole of any sums received from the company is appropriated in aid of Army votes; but the Army Council stipulate that the personnel taking part in the production shall, in addition, be paid by the company at current civilian rates when the circumstances justify it.

Airship Construction

MR. HARDIE, on December 7, asked the Secretary of State for Air whether his attention has been called to the fact of the comparatively advanced stage of the airship R.100 to that of the airship R.101; and if he can explain the disparity?

SIR P. SASSOON: The designs and methods of construction of R.100 and R.101 are essentially different, and the advanced stage of the erection of the framework of R.100 as compared with that of R.101 does not involve so great a disparity as might at first sight appear. I may add that a large amount of research and other work (including experimental flying with the R.33) has been carried out at Cardington simultaneously with the designing of the R.101.

Launching Handling Party

MR. ROSE asked the Secretary of State for Air if his Department had made any calculation as to the number of men that will be required to make up the hauling-out gang for the airships R.100 and R.101 when, and if, they are launched?

SIR P. SASSOON: It is estimated that a handling party of about 400 men will be required at the first launching of these two ships. I may add that when their trials are completed, they will ordinarily operate from mooring masts.

Light Aeroplane Clubs

CAPT. ARTHUR EVANS asked the percentage of fees charged for civilian flying instruction by officially recognised aeroplane classes which are set aside for insurance purposes; and if, in view of the small number of accidents, he will make representations to the insurance companies concerned to reduce their premiums in order that the cost of flying instruction may be lessened?

SIR P. SASSOON: So far as I am aware, there is no uniform percentage of fees set aside for the purpose referred to, but the question of insurance is

a matter entirely for the light aeroplane clubs themselves and one in which I should hesitate to interfere. I have no grounds at present for taking action in the direction suggested in the last part of the question.

Capt. Evans asked the amount of subsidy paid in 1926 and up to the latest available date in 1927 to the London Aeroplane Club; the number of machines available for pupils for instructional and solo flying purposes; the number of instructors and how many pupils are on the waiting list of flying members of the club, and the average length of time they are kept on the waiting list; and if he will make representations to the club authorities with a view to the general conditions and amenities being improved on the lines of the Hampshire Aeroplane Club?

Sir P. Sassoon: The answer to the first part of the question is £1,472 10s. for 1926 and £994 15s. for 1927, up to November 30. As regards the second part, three machines are at present available and another will be available by the end of this week. As regards the third part, there are two paid instructors, but I have no information regarding the number of pupils on the waiting list or the period they are kept on that list. As regards the last part, the question of improving the general conditions and amenities is entirely one for the club management. I must add, in fairness, that the results achieved by this club since its inception do not support the assumption that it compares unfavourably with any other light aeroplane club.

Col. Woodcock: Can the hon. member say whether his right hon. friend is entirely satisfied with the work of these clubs and the effect of the subsidies paid by the Government? Sir P. Sassoon: Yes, sir.

Schneider Cup (Seaplane Exhibition)

Capt. Bourne asked whether the exhibition of the seaplane which won the Schneider Cup on the Horse Guards Parade involves any expenditure of public funds; and, if so, to what vote such expenditure will be charged?

Sir S. Hoare: The transportation expenses from Felixstowe to London and back fall on the Air Ministry Vote, but otherwise I am aware of no expenditure from public funds resulting from this exhibit, which has been arranged by the Royal Aero Club.

NOTICES TO AIRMEN

Signals During Foggy Weather

It is notified that in the event of fog or mist obscuring the Airport of London, Croydon, or Lympne Aerodrome, Kent, their presence will be indicated to pilots of incoming aircraft by firing pyrotechnical lights of any colour. The actual colour of pyrotechnics employed will be left to the discretion of the C.A.T.O. in charge and will be the colour which, in his opinion, is most likely to be visible under the existing conditions of fog or mist.

(No. 90 of 1927.)

Belgium—Meteorological Ground Signals at Ostend

1. A REVISED system of ground signals conforming to the recommendation of the International Commission for Air Navigation is now in force at Ostend aerodrome to denote to pilots the weather, visibility, and height of clouds at Lympne and Schiphol (Amsterdam).

2. For each station for which information is displayed, there are four white rectangular panels placed in a line. On these four panels, reading from left to right, are indicated by means of letters or symbols—

- The station for which the information is given.
- The weather.
- The visibility.
- The height of the base of the lowest cloud.

On the first panel is a single letter permanently fixed indicating the station to which the information refers, thus: L for Lympne and A for Amsterdam. The second, third, and fourth panels bear red diamond-shaped marks, arranged as on a playing-card, and indicating, according to their number, the weather, the visibility, and the height of the lowest cloud respectively.

The second panel is only utilised when one of four adverse weather phenomena is reported. Each of these is represented as follows:—

Number of diamonds.

One (in centre of panel)	..	..	..	rain or drizzle.
Two	..	..	..	snow, hail, or sleet.
Three	..	..	..	thunderstorm or line squall.
Four	..	..	..	Gale.

The remaining panels, indicating the visibility and the height of the lowest cloud respectively, are similar to those which form part of the meteorological ground signals at Lympne (vide Air Pilot Appendix, Part IV, paras. 24-28).

3. The signals are displayed on the roof of a hangar, and the signal referring to Lympne is placed so as to appear the right way up to a pilot flying in a south-westerly direction, while the Amsterdam signal is placed so as to appear the right way up to a pilot flying in a north-easterly direction.

4. Air Pilot Appendix, Part IV.—Paragraphs 31-33 are cancelled.

(No. 92 of 1927.)

R.A.F. Passing-Out Inspections

The following Passing-Out inspections will be made during the present month:—On December 16, the R.A.F. Cadet College, Cranwell, Lincs, by Air Marshal Sir John M. Salmond; on December 20, Aircraft Apprentices at No. 1 School of Technical Training, Halton, Bucks, by Marshal of the R.A.F., Sir Hugh M. Trenchard; and also on December 20, Aircraft Apprentices at Electrical and Wireless School, Flowerdown, Winchester, Hants, by Air Vice-Marshal Sir John F. A. Higgins.

R.A.F. Fencing Results

The Royal Air Force Fencing Union at Uxbridge, on December 3, only just obtained a victory over the Birmingham Fencing Club, mainly owing to superiority with the foil, which event was won 2-7. Sqdn.-Ldr. F. G. Sheriff fenced with both foil and *épée*, and won five assaults out of six, and neither he nor Corp. W. R. Hancock was seriously extended in the foil bouts. Maj. R. E. Cole fenced exceedingly well with the sabre for the visitors, winning all his assaults against some strong opposition, and two young fencers, V. C. Morris and G. M. Lewis, the former especially, showed very promising form. Birmingham won two events to one, but lost on assaults.

The results were:—

Foil.—R.A.F.—Sheriff and Hancock, no defeat; S.-M. Bradbury, 2; total, 2. BIRMINGHAM—Cole and Morris, 2 defeats each; Lewis, 3; total, 7. *Epée*.—R.A.F.—Sheriff, 1 defeat; Bradbury and Sgt. Digby, 2 each; total, 5. BIRMINGHAM—J. F. Barker and Morris, 1 defeat each; C. R. Bird, 2; total, 4. Sabre.—R.A.F.—Flt.-Sgt. Scott, 1 defeat; Hancock and Sgt. Stabberfield, 2 each; total, 5. BIRMINGHAM—Cole, no defeat; Bird, 1; Lewis, 3 total, 4.

PUBLICATIONS RECEIVED

Perilous Days: True Tales of Adventure. By David Masters. John Lane, The Bodley Head, Ltd., Vigo Street, London, W.1. Price 8s. 6d. net.

The Air Pilot Monthly Supplement. No. 37. November, 1927. The Air Ministry, Kingsway, London, W.C.2.

Aeronautical Research Committee Reports and Memoranda: No. 1081. (M. 49).—The Flexure of Thin Cylindrical Shells and other "Thin" Sections. By L. G. Brazier. May, 1926. Price 1s. net. No. 1097 (Ac. 276).—The Flow of Air and of an Inviscid Fluid Around an Elliptic Cylinder and an Aerofoil of Infinite Span. Especially in the Region of the Forward Stagnation Point. By A. Fage. July, 1926. Price 1s. net. H.M. Stationery Office, Kingsway, London, W.C.2.

Revue Juridique Internationale de la Locomotion Aérienne. October, November, December, 1927. Per Orbem, 4, Rue Tronchet, Paris.

The Royal Air Force and British Empire Air Services Diary. 1928. Gale and Polden, Ltd., Wellington Works, Aldershot. Prices: Blue cloth, 1s. 6d. and 2s. net; blue leather, 3s. net. Postage, 2d. extra.

Physics in Industry. Volume V. By H. E. Wimperis and F. E. Smith. Oxford University Press, Technical Department, Falcon Square, London, E.C.4. Price 2s. 6d. net.

Nocturne Militaire. By Elliott White Springs. John Hamilton, Ltd., 2, Portsmouth Street, Kingsway, London, W.C.2. Price 7s. 6d. net.

Technical Report of the Aeronautical Research Committee for 1925-26. H.M. Stationery Office, Kingsway, London, W.C.2. Price £1 15s. net.

The Air Pilot Monthly Supplement, No. 36. October, 1927. Air Ministry, Kingsway, London, W.C.2.

We—Pilot and Plane. By Charles A. Lindbergh. G. P. Putnam's Sons, 24, Bedford Street, Strand, London, W.C.2. Price 7s. 6d.

Catalogues

The Cleaning of Metallic Articles. J. W. Jackaman and Co., Ltd., Vulcan Works, Blackfriars Road, Manchester.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

APPLIED FOR IN 1926

Published December 15, 1927

11,396.	J. R. PORTER.	Aeronautical machines. (280,604.)
20,270.	J. DE LA CIERVA.	Aircraft with rotative wings. (280,631.)
20,388.	C. A. and J. E. DERRY.	Aerial machines. (280,641.)
23,018.	LOCO RUBBER AND WATERPROOFING CO., LTD., and A. RYAN.	Rigid airships. (280,670.)
29,140.	F. H. ROYCE.	Electrical turning-gear for starting i.c. engines. (280,709.)

APPLIED FOR IN 1927

Published December 15, 1927

6,877.	L. E. REMONDY.	Device for protecting fuze of bombs suspended from aircraft. (267,920.)
10,083.	L. E. REMONDY.	Device for protecting fuse of bombs suspended from aircraft. (280,789.)
11,033.	E. OEHMICHEN.	Propelling or lifting device for aircraft with automatic correction. (271,842.)

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